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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/929,025	08/15/2001	Michael Binnard	371922002620	3636

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EXAMINER

LEYKIN, RITA

ART UNIT

PAPER NUMBER

2837

DATE MAILED: 04/02/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/929,025

Applicant(s)

BINNARD ET AL.

Examiner

Rita Leykin

Art Unit

2837

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-116 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-14, 20-23, 27, 39-61, 63-87, 89, 90, 92-94, 99, 101-104, 106-108, 111 and 113-116 is/are rejected.
- 7) ☒ Claim(s) 15-19, 24-26, 28-38, 62, 88, 91, 95-98, 100, 105, 109, 110, 112 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3,4. 6) ☐ Other: .

DETAILED ACTION

Specification

1. Claims 44-49 are objected to under 37 CFR 1.75(c) as being in improper form because of being a group of dependent claims that is dependent of a multiple dependent claim 27. See MPEP § 608.01(n). Accordingly, the claim 44-49 in combination with claim 27 not been further treated on the merits.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-14, 20-23, 27, 39-61, 63-87, 89, 90, 92-94, 99, 101-104, 106-109, 111 and 113-116 are rejected under 35 U.S.C. 103(a) as being unpatentable over Poon et al. U S # 6,281,655 and Loopstra et al. U S # 6,337,484 and Ono US # 5,780,943.

Poon et al. discloses a stage assembly 10 for moving and positioning one or more objects 24 for an exposure apparatus 28. Wherein, the stage assembly 10 includes a fine stage 14 and coarse stage 18. The fine stage 14 is provided with holder 15 that retains the object 24. A fine "X" direction mover 34, a fine "Y" direction mover 32 precisely move the fine stage 14 relative the coarse stage 18. The fine stage movers 32 and 34 are positioned on one side of the holder 15. The stage assembly 10 also includes an anti-gravity mechanism 40 that minimizes distortion of a stage base 12 that supports the fine stage 14 as it moves above the stage base 12. Additionally, the stage

assembly 10 includes a reaction assembly 20 that reduces the amount of reaction forces transferred from the coarse stage 18, (see abstract and column 3, lines 43-67, column 4, lines 1-37).

Besides the others the coarse stage 18 includes a coarse "X" mover 38, which comprising a pair of spaced apart voice coil actuators. The first portion of the coarse "X" mover 38 includes a pair of spaced apart coils and the second portion 154 of the coarse mover "X" 38 includes a pair of X magnet arrays 160. Each coil is disposed within generally "I" shaped X coil frame 162, (see column 11, lines 18-27). Coarse stage 18 also includes coarse "Y" direction mover 36. The coarse frame 122 is of rectangular tube shaped and including a coarse frame top 132 and coarse frame bottom 130. The first portions 126 and the second portion 154 of the coarse mover 38 interact selectively move the coarse stage 18 along the X axis and about the Z axis, (see Fig. 1-5, 8 and column 9, lines 14-58, column 10, lines 1-50). Shown in Fig. 8 the electromagnetic actuator assembly is provided

In Fig. 13 Poon et al. provide an illustration of an exposure apparatus including an illumination system 204 that irradiates radiant energy, wherein the stage device carrying the object on the path of the radiant energy and optical system 50 that with which the stage system is aligned.

Poon et al. do not teach variable reluctance actuator or in other words the use of an electrical motor. However, Loopstra et al. teaches positioning device and lithographic projection apparatus wherein, the positioning device comprising a first and second part what are displaceable relative to each other by means of Lorentz-force-motors. The

examiner takes an official notice that Lorentz-force or in other words electromagnetic force is a part of electromagnetic operation of many motor types including reluctance motors as it claimed by the applicant.

Poon et al. do not teach a pair of magnetic device that comprising three pairs of electromagnetic actuator devices. However, Ono in his exposure apparatus shows three electromagnetic actuators 42, 46, 38, (see Fig. 6 and column 5, lines 52-67 and column 6, lines 1-28).

The above prior art comprises components and structure that can be read on the language of the submitted application.

Hence, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use teachings of the above prior art to provide a modified exposure apparatus in order to reduce the distortions that may occur under the forces of moving parts of the device.

The reason is to isolate the lithographic apparatus from its own reaction forces and external vibrations.

Allowable Subject Matter

4. Claims 15-19, 24-26, 28-38, 62, 88, 91, 95-98, 100, 105, 109, 110, 112 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

5. The following is a statement of reasons for the indication of allowable subject matter:

Prior art listed in the attached PTO-892 form considered to be pertinent to the submitted application. However, none of the cited prior art teaches or suggests in combination:

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rita Leykin whose telephone number is (703)308-5828. The examiner can normally be reached on Monday-Friday 8:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Nappi can be reached on (703)308-3370

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

Rita Leykin
Primary Examiner
Art Unit 2837



R.L.
April 1, 2003